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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/676,294	09/30/2003	Reza M. Golzarian	42P16397	8190

8791 7590 05/03/2005

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EXAMINER

PHAM, THANH V

ART UNIT PAPER NUMBER

2823

DATE MAILED: 05/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/676,294

Applicant(s)

GOLZARIAN ET AL.

Examiner

Thanh V. Pham

Art Unit

2823

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 February 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) 15-26 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 2,6,7 and 10-14 is/are allowed.
- 6) ☒ Claim(s) 1,3-5,8 and 9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Claims 18-26 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 02/22/2005. Further, in the conversation with Mr. Angelo J. Gaz on 04/21/2005, the first species is selected. Therefore, claims 15-17 are non-selected species, claims 1-14 are considered in this office action.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 3-5 and 8-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Akagawa US 6,121,688.

Re claim 1, the Akagawa reference discloses a method comprising:

forming a first conductive material 38 in an opening (col. 4, lines 7-8) through a dielectric 34 to a contact point 36;

forming a second conductive material 40 on the first conductive material 38; and

wherein the first conductive material comprises a unidirectional electrical conductivity and the unidirectional conductivity is configured to be in a direction

corresponding to a projection to or from the contact point and the second conductive material (col. 4, lines 11-17).

Re claim 3, the contact point is a contact point to a circuit device (col. 4, lines 6, 9-11), and wherein forming a forming a first conductive material includes forming in a via of the dielectric to contact the circuit device, figs. 1-2.

Re claim 4, the method further comprising forming an interconnect structure in the opening 44 on the second conductive material 40.

Re claim 5, the method further comprising: forming a third conductive material on an exposed portion of the interconnect structure, wherein the third conductive material comprises a unidirectional electrical conductivity in a direction normal to the exposed portion of the interconnect structure, figs. 7-8.

Re claim 8, the second conductive material is formed by a sputtering method (col. 4, line 29).

Re claim 9, the first conductive material comprises copper (col. 4, line 28).

Allowable Subject Matter

4. Claims 2, 6-7 and 10-14 are allowed.
5. The following is a statement of reasons for the indication of allowable subject matter: the cited prior art, individually or in combination, does not disclose or suggest all of the claimed elements in the present application wherein the first conductive material comprising a unidirectional electrical conductivity is formed over by a seed material in a via that leaves the first conductive material overlying the contact point or the surface of the formed interconnect structure is modified by a stripping agent,

planarization, polishing or doping with a dopant or this first conductive material could be CMP or doped in the context of claim 1.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

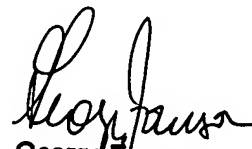
7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanh V. Pham whose telephone number is 571-272-1866. The examiner can normally be reached on M-T (6:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on 571-272-1855. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

WP

TvP
04/27/2005


George Fourson
Primary Examiner